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OFFICE OF
ENVIRONMENTAL CLEANUP

JAN 14 2011

MEMORANDUM

SUBJECT: National Remedy Review Board Recommendations for the Terminal 117 Early Action Area within the Lower Duwamish Waterway Superfund Site

FROM: for Daniel D. Opalski, Director
Office of Environmental Cleanup

TO: Amy R. Legare, Chair
National Remedy Review Board

626850

National Remedy Review Board Advisory Recommendations

The National Remedy Review Board (the Board) completed its review of the proposed cleanup action for the Terminal 117 (T-117) Early Action Area within the Lower Duwamish Waterway Superfund site, in Seattle, Washington. This memorandum documents Region 10's responses to the Board's advisory recommendations.

This memorandum was prepared and shared with the Board in September 2010. Region 10 has recently recognized its oversight in not getting the Board a signed, final version of these responses. As such, Region 10 is providing this final, unmodified version of its responses now to ensure that the site record is complete. In addition, this is also being incorporated into the Administrative Record for the site as it was part of the decision-making process for T-117.

Principal Threat Waste

National Remedy Review Board (NRRB): The materials presented to the Board indicate that both PCBs and dioxin/furans are present in soils and sediment at this site. PCBs were detected at concentrations as high as 4,200 ppm but the Region does not believe these are principal threat wastes at this site. Pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) section 104(a)(2) this non-time-critical removal action (NTCRA) should, to the extent practicable, contribute to the efficient performance of the long-term remedial action. Since the T-117 EAA will remain part of the larger (LDW) Superfund site and will be part of the remedial action to further reduce risks to human health, the Board recommends that the Region explain how its approach is consistent with CERCLA, the NCP, and Agency guidance (e.g., Office of Solid Waste and Emergency Response [OSWER] Guidance 9380.3-06FS, *A Guide to Principal Threat and Low Level Threat Wastes* and OSWER Guidance 9355.4-01FS, *A Guide on Remedial Actions at Superfund Sites With PCB Contamination)*. The Board recommends that an explanation for the Region's approach to principal threat waste be included in the decision documents. In particular, this explanation

principal threats" and "utilization of treatment to the maximum extent practicable" provisions. The Board also recommends that the Region coordinate with Office of Superfund Remediation and Technology Innovation (OSRTI) with regard to the ongoing development of draft interim dioxin preliminary remediation goal guidance and how that should be considered in addressing the dioxin contamination at this site.

Region 10 Response: In general, principal threat wastes (PTW) are those source materials considered to be highly toxic or highly mobile which generally cannot be contained in a reliable manner and/or would present a significant risk to human health or the environment should exposure occur. EPA believes that though certain source materials are addressed best through treatment because of technical limitations to the long-term reliability of containment technologies, or the serious consequences of exposure should a release occur; these expectations also reflect the fact that other source materials can be safely contained and that treatment for all waste will not be appropriate or necessary to ensure protection of human health and the environment.

While isolated samples of soil and sediment that have PCBs detected above levels that might constitute a principal threat, these were generally not collocated and it was not determined that there was an identifiable area that posed a principal threat. Sufficient information was not available for other contaminants to identify the presence of a principal threat waste.

<u>Remedial (Removal) Action Objectives</u> (The Region has responded to each of the four NRRB points in this comment separately.)

NRRB: During the presentation to the Board, the Region noted that the remedial action objectives (RAOs) presented were drawn from the ongoing remedial action at the larger Lower Duwamish Waterway site. The Board recommends that the Region develop an area-specific RAO to address human direct contact exposure risk from the soil contamination at the T-117 Early Action Area.

Region 10 Response: **In response to this comment, the Region included the following RAOs in the Action Memo.**

Sediment

- **Human health – seafood consumption. Reduce human health risks associated with the consumption of resident LDW fish and shellfish to protective levels. This RAO is expected to be consistent with the RAO for future remedial actions in the LDW.**
- **Human health – direct contact. Reduce human health risks associated with exposure to COCs through direct contact with sediments and incidental sediment ingestion by reducing sediment concentrations of COCs to protective levels. This RAO is expected to be consistent with the RAO for future remedial actions in the LDW.**

- **Ecological health – benthic. Reduce toxicity to benthic invertebrates by reducing sediment concentrations of COCs to comply with the SMS.**

1. **Ecological health – seafood consumption. Reduce risks to crabs, fish, birds and mammals from exposure to COCs by reducing sediment and surface water concentrations of COCs to protective levels.**

Soil

- **Sediment protection. Reduce PCB concentrations in upland soils to ensure protection of sediments.**

Groundwater

- **Groundwater and Sediment protection. Reduce migration of contaminants in groundwater to sediments to reduce risk to human health and the environment.**

NRRB: On the pre-call, the Region indicated that this early action would represent a final cleanup of the T-117 site. During the presentation, the Region indicated that the cleanup would be a final active response action for sediment but not for the yards. The presentation also indicated that a goal of the actions in the Duwamish River is to reduce human health risk, as well as ecological risks, from the consumption of contaminated biota. The Board notes that the current action, by itself, may not result in a reduction of contaminants in biota. The Board recommends that the decision documents clarify which parts of the T-117 Early Action Area represent final action at this portion of the Lower Duwamish site. The decision documents should also more clearly state the expected goals of this removal action and how the current action fits with the remediation of the entire Lower Duwamish Waterway to meet risk reduction goals for protectiveness of both human health and the environment as well as how the action fits with the baseline risk assessment of the LDW.

Region 10 Response: **Region 10 has clarified the expected goals of this removal action and how the current action fits with the remediation of the LDW Superfund project to meet risk reduction goals for protectiveness of human health and the environment in the Action Memorandum prepared for this removal action. Overall, this action represents the complete cleanup of two areas within the Removal Study Area – the off-shore sediments and the T-117 Upland area. Although PCBs will be entirely cleaned up in the Adjacent Streets and Residential Yards portion of the Study Area, dioxin/furans outside of the PCB contaminated areas are still undergoing additional study as part of a larger upland area by Ecology. The Region will continue to coordinate with OSRTI with regard to developments regarding the draft interim dioxin preliminary goal guidance and consider any developments in regard to this site.**

The current action will result in a reduction of contaminants in local off-shore LDW biota. The sediments in this area (2 acres) will be dredged to removal action levels (2-7 feet in some locations) and then replaced with clean backfill material to recontour the LDW. The new sediment substrate, and the upland soils that will come into contact with, or become new intertidal sediments, will meet all Removal Action Objectives and RvALs in the removal area as stated above and in the EE/CA. This action is expected to be consistent

with the long term remedial action for the Lower Duwamish Waterway and contribute to overall risk reduction in the Waterway. Overall risk reduction resulting from Early Actions will be discussed and outlined in the LDW Feasibility Study and considered in remedy selection.

NRRB: The Board notes that, while groundwater monitoring can be included in a removal action, it is typically better suited to remedial investigation or remedial action as discussed in the February 14, 2000, Stephen Luftig/Barry Breen memo, "Use of Non-Time Critical Removal Authority in Superfund Response Actions" (http://www.epa.gov/compliance/resources/policies/cleanup/superfund/tcrit-super-mem.pdf). If it is retained as an element of this NTCRA, the Board recommends that decision documents clarify the objectives and requirements of the proposed groundwater monitoring action. The RvALs should be based on these objectives, and the consequences of measuring contamination above the removal action levels should be established.

Region 10 Response: In response to this comment, the Region has added an RAO pertaining to groundwater and clarifying the objectives of the removal action and groundwater monitoring. Groundwater monitoring will be retained as part of the removal action in order to evaluate the effects of soil and sediment removal on this media. The objectives of the groundwater monitoring will continue to (1) determine if groundwater migrating onto the T-117 Upland contains contaminants at levels that have the potential to recontaminate the T-117 upland area, and (2) determine if groundwater at the T-117 Upland contains contaminants at levels that have the potential to cause unacceptable human exposures or cause contaminants to migrate into the LDW sediments (including any bank or sediment area created as part of the NTCRA) at levels exceeding the Washington State Sediment Management Standards or Washington State Water Quality Standards. If groundwater is measured above the RVALs, additional measures for addressing groundwater will be evaluated (e.g., ground water treatment, cut off walls, etc).

Region 10 expects that the quality of groundwater (which is not significantly contaminated before it enters the T-117 Upland Study Area) and surface water (throughout the removal area) will be significantly improved by the selected alternative which will completely eliminate contaminants from soil and sediments. Region 10 also has sufficient "pre-removal" surface water, catch basin and groundwater data to which post-removal data will be compared. If additional source control actions are deemed to be necessary (e.g., if these media are determined to be a threat to recontamination of the T-117 upland soils or the adjacent sediments in the LDW), additional actions will be evaluated. In the same way that this action will both enhance, and be enhanced by, other removal and later remedial actions, it will contribute to improved surface waterway quality.

<u>Impact on Surface Water Contamination</u>

NRRB: In the materials presented to the Board, some of the numeric RvALs listed include drinking water standards, though the groundwater is identified as non-potable water. Elsewhere, the package states that the RvALs are concentrations needed in order to prevent the recontamination of sediment, but some of the constituents identified as ground water COCs were not found in sediment. In addition, AWQC are used for some groundwater RvALs. Lastly, the package does not present any surface water data, so it is unclear what, if any, contribution the T-117 area has on LDW surface water contamination. The Board recommends that the decision documents clearly explain the reasons and supporting data for addressing recontamination of surface water by ground water discharge from this area.

Region 10 response: A groundwater RAO will be included in the Action Memo as follows:

- **Groundwater and Sediment protection. Reduce migration of contaminants in groundwater to sediments to reduce risk to human health and the environment.**

Regarding the selection of removal action levels for groundwater, this determination is thoroughly discussed in Section 4.3.3 "Development of Groundwater removal action levels" in the EE/CA. In general, several factors were considered to develop the RvALs. They were calculated or developed using MTCA Method B, ARARs, surface water protection criteria using MTCA equation 730-2, and cleanup levels from MTCA or site-specific background.

As stated above, Region 10 expects that the quality of groundwater (which in not significantly contaminated before it enters the T-117 Upland Study Area) and surface water (throughout the removal area) will be significantly improved by the removal alternative that will completely eliminate contaminants from five acres of highly contaminated soil and sediments. Region 10 also has sufficient "pre-removal" surface water, catch basin and groundwater data to which post-removal data will be compared, (nevertheless, quarterly sampling will continue because 2 new groundwater wells were installed in Fall 2010).

The T-117 EAA has surface water concentrations that are representative of the concentrations found in this reach of the LDW. Although surface water ARARs for some COCs may not be achieved with this NTCRA, or in some instances by the LDW remedial action to be selected in the next few years, it is undeniable that removing the contaminated sediments, nearshore soils, surface water and groundwater discharges to the LDW will result in cleaner LDW surface water, especially within the T-117 EAA.

Removal Action

NRRB: The Board notes that actions of this type and scale are typically implemented as remedial actions. The Board believes it would be appropriate for the Region to explain why this portion of the larger Lower Duwamish Waterway cleanup is being done as a removal action instead of an operable unit that would be part of the ongoing remedial action. This explanation

should be included in the materials submitted to headquarters for the consultation required pursuant to the February 2000 Luftig/Breen memo identified above.

Region 10 Response: A ROD for the Site is estimated to be years away. The decision to remove known hot spots of the highest concentrations of contaminants of concern without waiting for the completion of the RI/FS, Proposed Plan and ROD processes dates back at least 10 years, prior to the initiation of the RI/FS. The Final RI Report was only recently finalized and early drafts of the Feasibility Study are currently under review. The Region has coordinated early actions to be consistent with the ongoing RI/FS and fully expects this action to be consistent with the final remedy for the Site.

A Site-wide RI deliverable entitled, "Identification of Candidate Sites for Early Actions – Technical Memorandum: Description of Candidate Site Selection Criteria (June 19, 2002)" describes the process and criteria by which the LDW Superfund Site identified five potential "Early Action Areas" (EAA) for removal to address the most contaminated areas on the waterway. Region 10 prepared an explanatory "Approach for Preparing the Engineering Evaluation/Cost Analysis Approval Memoranda for the Proposed Non-Time-Critical Removal Actions at the Slip 4 and T-117 Early Action Areas of the Lower Duwamish Waterway (LDW) Superfund Site " on July 7, 2004. These materials will be included in the materials submitted to headquarters for the Removal consultation.

The actions selected in this Memorandum will improve water quality in the LDW to an unknown degree, likely most demonstrably within the EAA and areas in its immediate proximity. Monitoring water quality with the legal standards as the goal to the extent practicable is fully consistent with CERCLA and the NCP, especially since this NTCRA constitutes "early action" that would otherwise be taken later as remedial action. This temporal distinction provides no basis for an alternate standard regarding promulgated requirements, since the only distinguishing legal feature of the early action standard is that it is merely to the extent practicable. Early actions and subsequent remedial actions at an NPL site should have the same goals and standards before them. Having such consistency does not prolong, extend, alter or harm the early action or subsequent remedial action, To the exent that water quality criteria or standards or any other ARARs prove unachievable at the LDW Site, including its EAAs, they may be subject to waiver pursuant to Section 121(d)(4) of CERCLA prior to completion of LDW remedial action.

Lastly, as remedial action for an operable unit, referral to the U.S. Department of Justice (DOJ) would have been necessary for the negotiation of a remedial design/remedial action (RD/RA) Consent Decree pursuant to Section 122(d) of CERCLA for the implementation of remedial action by responsible parties. The model RD/RA consent decree provides for a final covenant not to sue which is granted to most Settling Defendants and would therefore have been difficult to avoid granting here. This would not provide the flexibility with regard to anticipated sediment recontamination (of whatever degree) as described in the Action Memo. As removal actions EAAs are readily inserted into the LDW ROD as part of the larger site, for such additional action as may be (and is anticipated to be as described in the Action Memo) necessary (e.g., ICs limiting human resident seafood consumption). By addressing EAAs as removals, the region maintains

maximum flexibility for these areas as remedial alternatives are developed and ultimately selected, based perhaps in part on post-removal implementation data. EPA is also readily able to negotiate NTCRA AOCs with Respondents, without a final covenant not to sue from the United States, without time consuming referrals or unnecessarily burdening DOJ.

Protectiveness

NRRB: As noted above, the presentation to the Board indicated that a goal of the actions in the LDW is to reduce human health risk, as well as ecological risks, from the consumption of contaminated biota. However, the current action, by itself, may not result in a reduction of contaminated biota. The Board recommends that the Region look forward toward how this removal action and the final remedy for the LDW site will meet the threshold criteria for protectiveness, both for human health and ecological risks.

Region 10 Response: **This early action is anticipated to dramatically affect local benthic contamination, and the rest of the food chain that consumes it including people. Throughout its full areal extent, the benthic community will live in the clean fill material that will replace all the removed contaminated sediments. Region 10 further fully expects the removal action to reduce human health risk as well as ecological risks within this area for all the reasons stated in the response to the comment above. This removal action fully fits within the future remediation objectives of the LDW Site. It should help achieve the risk reduction goals within the removal area, and should both assist the larger Superfund site in achieving these goals wherever fish swim in the LDW**

The Board recommendation that Region 10 "look forward toward how the final remedy for the LDW will meet the threshold criteria for protectiveness, both for human health and ecological risk" is premature since there is no ROD, or Proposed Plan, or more than a first draft of the FS. Nevertheless, as at most water body sites particularly in Region 10 where treaty-protected tribal fishing rights are affected, Region 10 anticipates needing to rely on fish advisories to the limited extent necessary to protect tribal and other higher resident seafood consuming affected populations to the extent that concentrations of bioaccumulative COCs remain above protective levels in Site fish and shellfish tissue. Based on tribal fish consumption rates, risk-based concentrations (RBCs) protective of the fish consumption pathway will be more stringent than background.

Applicable or Relevant and Appropriate Requirements (The Region has responded to each of the three NRRB points in this comment separately.)

NRRB: In the materials presented to the Board, the Washington Model Toxics Control Act (MTCA) (WAC 173-340, Section 720, 740, 745) is identified as an ARAR for soil and groundwater. It does not appear to the Board that the MTCA is an ARAR at this site, but it may be appropriate to use MTCA as a "to-be-considered" guidance when developing human health- and environment-protective soil and groundwater cleanup levels. The Board recommends that the Region clarify that the excavation depths (especially in the T-117 upland removal area) are

driven by source control concerns as opposed to the point of compliance provisions for soil cleanup levels in State regulations.

Region 10 Response: Generally, Region 10 disagrees that MTCA is not an ARAR and is more appropriately considered a "to-be considered TBC. MTCA has been used in this manner as an ARAR at dozens of Region 10 sites. See the Action Memo description of the use of TSCA consistent with MTCA rule WAC 173-340-740 as the soil cleanup standard.

The Port of Seattle (T-117 Upland property owner) has made a commitment to the local citizens to cleanup the Upland Study Area to the standard of "unrestricted land use" or "residential standards." Therefore, all of the soil which exceeds this MTCA/TSCA standard will be removed to the depth that it is found. Generally, these depths range from two to seven feet. Excavation is not driven by the point of compliance provisions for soil cleanup levels in the state's regulations but rather by the objective to remove all contaminated soil exceeding the MTCA cleanup standard in order to be protective of the adjacent sediments.

NRRB: The Board also recommends that the Region distinguish between those ARARs that the preferred alternative will actually comply with versus those that will be met to the extent practicable.

Region 10 Response: The Sediment Management Standards and upland soil cleanup standards identified in the Action Memo will be fully complied with. Water quality standards consistent with the response to the direct question about the Clean Water Act will be met to the extent practicable.

NRRB: In the presentation to the Board, the Clean Water Act is listed as an ARAR and that the goal for the removal action is to achieve ambient water quality criteria (AWQC) in the Duwamish Waterway surface water. The Region indicated that the goal of meeting the AWQC may not be met until other actions within the Lower Duwamish Waterway are completed, and that it is possible that the ARAR may need to be ultimately waived. The Board recommends that the decision document clearly state the expected goals of this removal action and how this removal action relates to the overall surface water goals of ARAR compliance for the Lower Duwamish Waterway remediation.

Region 10 Response: Several responses to previous comments apply here to the extent that the goals or objectives of the waterway removal and remedial actions should be parsed and explained, as well as how ARAR compliance is presented. See the discussion for how water quality criteria will be achieved to the extent practicable in this removal action. The Action memorandum has been further clarified as requested.

Cost

NRRB: In the presentation to the Board, Alternative 2 (the preferred alternative) for the sediment action lowers the surface elevation at the river edge such that habitat restoration may be

facilitated through natural resource restoration actions. The Board recommends that the decision documents more clearly identify the costs associated with removing sediments to meet risk-reduction goals as opposed to restoration efforts, which could be viewed as enhancement actions.

Region 10 Response: The costs provided in the EE/CA and the materials prepared for the Remedy Review Board only included the costs associated with removing sediments to meet risk reduction goals as opposed to any restoration efforts. No restoration efforts were identified or evaluated as part of the removal action. While the parties may enter into a future Agreement with natural resource trustees to perform restoration activities as part of a natural resources damages settlement or for any other reason, the Region will cooperate to the extent it can do so in a timely manner, but remedy selection was not predicated upon or informed by restoration needs, and costs of restoration are not and will not be "commingled" with this removal action. The only acknowledgement in the EE/CA that restoration activities could occur after completion of the removal action is that Alternative 2 identifies Option A and Option B. Option A anticipates clean backfill is brought in to the site to re-create the original site grade. Option B anticipates the post-removal site grade is maintained to allow for restoration opportunities (e.g., additional inter-tidal area is created).

Conclusion

We commend the Region's collaborative efforts in working with the Board and stakeholder groups at this site. We request that a draft response to these recommendations be included with the draft Action Memorandum when it is forwarded to the OSRTI's Site Assessment and Remedy Decisions (SARD) branch for review. The SARD branch will work with both your staff and the Board to resolve any remaining issues prior to your release of the Action Memorandum. Once your response is final and made part of the site's administrative record, a copy of this letter and your response will be posted on the Board's website (http://www.epa.gov/superfund/programs/nrrb/).

Thank you for your support and the support of your managers and staff in preparing for this review. Please call me at (703) 347-0124 should you have any questions.

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